

*Rei des Bâtiments*, was represented; at Bannha, the *Préfect des Bâtiments*; at Douai, the *Fils des Fleurs*, &c. How effectually such pageants set on the public mind, may be gathered from the fact, that on the occasion of the festival at Bordeaux, 80,000 francs were collected for the indigent, while at the same time the traditions and history of the city were artistically revived.

**Model Barracks for the Custom-House Employees at Havre.**—Although the housing of people in barracks is to be considered only as a temporary arrangement, the huge *Casernes-modèles* of Gravelle, near Havre, deserves notice. It was in the year 1846, that the plan of concentrating the many employees of the above establishment in one building, was first started. The place selected for this huge structure in one of the suburbs of the city, offered the inconvenience of a damp alluvial soil, but this had been successfully overcome, and thus the general salubrity of the district promoted at the same time. Although the expense of the building was nearly one million of francs, it has not cost the public anything, as this whole sum has been borrowed on the security of the salaries and wages of its intended dwellers, and is now paid off by small deductions. The plan is by M. Fortuné Brunet-Dubalain, architect of the city and the museum and library of Havre. The building has a rectangular form, with a front of 170 metres, and a depth of 33 metres. It is composed of a ground-floor, *caveau*, and three stories, surmounted by an attic, which forms the fourth. It contains five courts, around which the buildings are arranged. The middle is occupied by the lodgings of the bachelors; to the right and left four portico lead to the quarters of the married, which occupy the space around four of the courts, in which there are sixteen bleaching plates. This portion of the building comprises 300 lodgings, classified in four categories, according to size, amount of rent, &c. Four staircases, leading to most spacious corridors, belong to this portion of the *casernes*. The corridors of each story, leading to different classes of lodgings, are separated by gates, which can be opened for the facility of inspection. The centre building is entered by a vestibule, which leads to an immense court, whose angles are flanked by turrets. In this part are the quarters of the officers, the dormitories of the bachelors, a dépôt for the fire-engines (*sompes*), a *salle d'armes* (fencing-room), a laundry, an infirmary, a restaurant, a smoking-room, a tobacco-shop, and a *refectoire*, whose vast dimensions remind us of those of ancient monasteries or colleges. Here is also the dispensary and the physician's room, as the administration is very attentive to the health of the numerous inmates. Dr. Lallemand has reported, that in the year 1850, of the 1,600 inmates of the *casernes-modèles*, only twenty persons have died, while sixty births have taken place. To crown these well-meaning attentions of the officers of the establishment, a gratuitous school has been established, where 600 children receive a sound and adequate education. As the commerce of Havre is on the increase, there is already a lack of space and accommodation evident in the *casernes-modèles*, which, however, will be remedied by the construction of two new wings, of which the plan of the building is susceptible. The space surrounding the building is also yet in a state of barrenness and uncultivation, which claims the attention of the direction of this certainly novel and well-meant establishment.

**Bahia, Brazil.**—*Pictures of the Conquest.*—There have been discovered of late in one of the suburban churches of the city of Bahia dos todos os Santos, two oil pictures, which date from the times of the conquest, in the early part of the sixteenth century. They represent some festivals celebrated in honour of the famous Camamoroo, a noble Portuguese, who, by gaining the affection of one of the daughters of a chief of the Bacocovo, acquired this large province, which he and his wife subsequently gave to the Crown. The natives in their original dresses are seen dancing in large circles, while the old-fashioned Portuguese

*Caretas*, who have conveyed the guests, are standing in the background. These oil paintings, probably the "oldest" (albeit frail) documents of American art, are still creditably executed, and especially the landscape part, representing the country then covered with dense forests, only partly cleared, is well rendered. They well deserve the attention of travellers, having been never copied nor engraved. That art had not been quite foreign to these colonists of old, may be also gathered from the fact, that some of the fronts of the churches at Bahia and Rio de Janeiro are made of marble, conveyed thither from Portugal, the mother country.

**Discovery of a Mosaic Pavement near Valence.**—It was as far back as the year 1840, that some marble cubes had been discovered in a field at Corvillas, but the subject remained in abeyance, until lately that works of greater extent have yielded more important results. The Mosaic pavement laid bare has an extent of 40 metres by 4 metres, and is formed of regular cubes of the size of about 2 centimetres, exhibiting a great variety of colours. The marbles of the Pyrenees are of great diversity, as well as the polished grita (*grès*), bricks of very fine red colour, &c. The small cubes are laid in a bed of cement of about 15 to 20 centimetres thickness, and which seems to consist of pounded brick intimately mixed with lime. The design is composed of tastefully arranged *rosaces*, lilies, leaves of ferns (*songères*), which latter would be a novel feature of antique ornament. Some circular spaces left unoccupied seem to show that columns might here formerly occupied the same locality.

#### ON THE GEOMETRICAL PRINCIPLES OF BEAUTY, MORE PARTICULARLY AS APPLIED TO ARCHITECTURE AND THE HUMAN FORM.\*

On this subject Mr. Hay has just now published an ingenious volume as a sequel to former works, wherein he endeavours to systematise the elements of symmetrical beauty. He has also read papers on the same subject before the *Architectural Institute of Scotland*, and the *Society of Arts of London*. At the Scottish Institute it was referred to a committee of professional men to investigate.

We will avail ourselves of the paper read at the Society of Arts to give the writer's own views.

The basis of Mr. Hay's theory is this: A figure pleases the eye so far as its fundamental angles bear to each other the same proportion that the vibrations of the different notes in the common chord of music bear to each other.

In showing how he applies this principle of numerical harmonic ratio to forms, he takes the right angle, formed by the meeting of a vertical with a horizontal line, as the fundamental angle, corresponding to the note C, and from this he describes a quadrant of the circle; and from the point where this quadrant meets the horizontal line, he draws another vertical line of indefinite length. Dividing this quadrant by 3, 4, 5, &c., he draws lines from the right angle through these divisions, meeting the indefinite vertical line at greater degrees of altitude and at more acute angles as the parts of the quadrant between its half and its vertical side become smaller. These lines form, with the horizontal and the indefinite vertical line, a series of right-angled triangles, which Mr. Hay employs in the production of geometric beauty in forms as effectively, he maintains, as the harmonics are employed in the production of harmonic beauty in sounds. He shows by diagrams that the most perfect geometric figures—the square, the equilateral triangle, and the pentagon—which constitute the elements of the five regular solids or Platonic bodies, arise from the division of the quadrant, exactly in the same way that the octave to the fundamental note, the dominant, and the mediant, arise from the spontaneous divisions of the monochord.

He next explains his terminology, and shows

how every figure, whether rectilinear or curvilinear, has an elementary angle of some portion of a right angle, which, being applied to its name, at once explains its proportions.—thus, the scalene triangle of 3, 4, 5, &c.; the rectangle of 3, 4, 5, &c.; the isosceles triangle of 4, 5, &c.; the ellipse of 3, 4, &c.; the composite ellipse of 4, 5, &c.; and he next explains how these figures may be combined agreeably to the angles from which they are named, so as produce beauty to the eye as effectually as the combination of various notes whose frequency of vibrations agree in similar ratios.

Mr. Hay then proceeds to explain the method by which he applies this angular system in the rectilinear formation of an architectural elevation. Here he shows that spaces in which the prominent lines are horizontal and vertical lines, are agreeable to the eye when all the principal parallelograms fulfil the condition, that the diagonals make with the sides angles which are exact sub-multiples of a right angle, agreeably to the harmonic divisions by 2, 3, and 5, and sometimes 7. This he exemplifies by taking a given horizontal line as a base, from one end of which he draws diagonal lines, forming with it 3, 4, 5, of the right angle, meeting a vertical line at the other end of the base. The rectangles formed upon these diagonals are next divided by angles of 1, 2, 3, and 4 of the right angle; by which simple means he produces the rectilinear skeleton of an octastyle Doric portico, of the same proportions as those of the portico of the Parthenon or Temple of Minerva at Athens, showing, at the same time, that the composition of this unequalled structure is partly horizontal, partly vertical, and partly oblique, and that its angular elements corresponded exactly to the elements of that beautiful harmony called the chord of the seventh.

Mr. Hay next proceeds to show how this system may be employed in imparting true æsthetic proportion to the representation of human figures, such as the ancient Grecians imparted to the statues of their deities. This, he says, must in the first instance be done by applying it to the permanent structure of the bones; because it is in the relative positions, sizes, and forms of the various parts of this internal structure that we find those approximations which Nature makes in every direction to the perfect development of that fundamental law of beauty which we have hitherto felt to exist, although its nature has been involved in mystery. He therefore states his opinion to be, that without a knowledge of the osseous structure it is impossible for the artist truly to represent the external form of the human figure.

To construct a diagram by which such a skeleton may be formed as will impart to a representation of the human figure such proportions as characterise the ancient Grecian statue of Venus, Mr. Hay adopts the following harmonic angles, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 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Mr. Hay gives no measurements whatever of length or breadth: he simply adopts a vertical line to represent the full height of the figure, whatever that may be, whether intended to be engraved in miniature upon a precious gem, or sculptured of the most colossal dimensions. The proportions of every part of the skeleton, whether as to relative length, width, or depth, the form of the cranium and face, as well as of the thorax, whether viewed in front or in profile, he determines by the adoption of these eleven angles alone.

After having drawn the given line of supposed height, he draws from its apex five lines, forming with the vertical line angles of 3, 4, 5, 6, and 7, and from its base five lines, forming angles of 3, 4, 5, 6, and 7, of the fundamental or right angle. Through the point where the line of 3 intersects the line of 4 he draws another vertical line, cutting all the lines which were drawn at the above angles from each end of the original line of height. Through the point where this last vertical line cuts the line of 4, he draws a line forming an angle of 3 with the original line of height.

\* *The Geometric Beauty of the Human Figure Defined, to which is prefixed a System of Æsthetic Proportions applicable to Architecture.* By D. B. Hay. Blackwood and Sons. 1861.